

# Navigation Northwest

A Quarterly Newsletter of the Seattle Navigation Committee

**Volume 2, Number 4**

**December 2014**

## **Smart Phone and Dedicated GPS Navigation Course**

Are you interested in learning to use your smart phone as a wilderness GPS? Maybe you have had a dedicated GPS for years and want to get the most out of it? The Smart Phone and Dedicated GPS Navigation course is for you! We will cover basic usage of both dedicated GPS units and some select GPS apps for smart phones, as well as common issues which can affect GPS accuracy and ways to avoid them. This course is an evening at the Mountaineers Seattle Program Center in Magnuson Park, split between a classroom lecture and a hands-on outdoor exercise. This course is open to Basic Navigation students and graduates.

### **Topics include:**

- Overview of how GPS works
- Common accuracy issues and solutions
- Review of UTM coordinates
- Entering waypoints
- Navigating to a way point
- Back tracking a route
- Overview of emergency locating beacons (SPOT, PLB)

Students need to bring a GPS enabled device to the class; loaners are not available. We cover both Gaia for iOS and Android devices (\$20, Pro not required) and Garmin dedicated units. Other brand GPS units are welcome, but instructors may not be familiar with them.

Lead instructor Bruce Crawford teamed with Peter Hendrickson to work with more than 30 experienced navigation instructors May 27 and August 7 to bring the new smart phone/dedicated GPS course to life. The 2.5 hour evening sessions at the Program Center and in nearby Magnuson Park went quickly and student/instructors offered several suggestions to improve the offering.

Navigation Committee Treasurer Brian Starlin taught the first, revised session to 11 students October 6. It was a balmy evening and students were enthused to use the smart phones and dedicated devices to add to their navigation skills. We

have scheduled six GPS classes annually. Lead course administrator is Brain Seater ([bseater@gmail.com](mailto:bseater@gmail.com)) who is teaching the January 22 class. Fee.

The current URL provides a description and the 2015 dates are on the calendar: <https://www.mountaineers.org/about/branches-committees/seattle-branch/committees/seattle-navigation-committee/course-templates/smart-phone-dedicated-gps-seattle/smart-phone-dedicated-gps-seattle-2014-1>

<b>Smart Phone &amp; Dedicated GPS Course</b>	<b>Location</b>
Thursday, January 22	Seattle Program Center
Monday, April 20	Seattle Program Center
Thursday, May 14	Seattle Program Center
Monday, June 22	Seattle Program Center
Tuesday, August 11	Seattle Program Center
Monday, October 05	Seattle Program Center

### **Navigation Instructor Training January 14**

Veteran and first time Basic Navigation Course instructors are invited to enroll in the January 14, two-hour evening class to better prepare for teaching at the upcoming workshops and field trips. You'll want to read (or re-read) at least the first five Burns and Burns *Wilderness Navigation* chapters, look over the student problem sets, and spend some time with the Index and Baring Quads before the class.

Lead instructor Paul Thomsen ([paulthomsen@hotmail.com](mailto:paulthomsen@hotmail.com)), a veteran instructor and committee member, is taking over the class from Mike Sweeney who developed and capably taught the sessions for over 12 years. Paul will provide general tips on instructing adult learners and particular guidance on areas where students often stumble. Other experienced instructors will assist in small groups, as the sessions are interactive.

Space is limited. Enroll without delay. No fee.

### **An ESAR/Land Surveyors Look at Three Compasses Silva Ranger vs. Suunto MC-2 vs. Brunton TruArc15**

By Bob Boyd

The late October Seattle Basic Navigation Course workshop brought the opportunity to look more closely at three compasses often chosen by new (or experienced) wilderness navigators. As recent sun storm activity had abated I was able to field calibrate three popular compasses with the compass calibration station outside the Seattle Program Center.

**Silva Ranger:** A good compass with a long needle, was within  $1/2^\circ$  +/- of the mark, but took a strong light with magnification and a trained eye to set the declination. I wouldn't expect students could set their own declination.

**Suunto MC-2:** A good compass with a long needle, points  $2^\circ$  to  $2.5^\circ$  right of the mark (increase the E declination by  $2^\circ$  to  $2.5^\circ$  to correct this problem). I would expect students could set the declination themselves.  
This compass had concaved mirror issues, but that has been largely resolved.

**Brunton TruArc15:** A good compass but with a very short needle and a troublesome keyless declination adjustment. To accurately use this short needle takes practice, extra magnification, and a strong light. The keyless declination wasn't easy and three times someone popped the bezel out of the baseplate. I wouldn't expect a student could operate this compass with ease.

Notes: Presently there are no adjustable declination compasses being made for basic wilderness use that are flawless. The last good compass, recently made, was the Red Brunton 15TDCL. If the Brunton TruArc15 had a long needle and a keyed declination scale, it would be the next good compass.  
At present the Suunto MC-2, after adjusting the declination by  $2^\circ$  to  $2.5^\circ$ , is the only user-friendly compass.

*No Two Compasses Point In The Same Direction – All Compasses Must Be Sighted In Before Using.*

*--Bob Boyd is an ESAR and Mountaineers volunteer instructor and compass consultant. He is a Washington licensed land surveyor.*

### **Alpine Scramble Compresses 2015 Curriculum Dates**

The Seattle Navigation Committee has approved an Alpine Scramble Committee proposal to add a scramble-focused workshop (April 2), Mentor Session (April 9) and field trip (April 11) to the 2015 Basic Navigation Course offerings. Scramble Co-Chair Nina Crampton explained that her committee would start instruction in March (rather than January) to collapse the activities to March-May, rather than January-May.

Prospective scramble students are still encouraged to complete their Basic Navigation Course requirement as early as possible. The Navigation Committee canceled the previously scheduled February 15, 2015 field trip and the handful of registered students were offered priority enrollment in the other four winter/spring field trips. You must take the workshop before enrolling in one of the field trips.

## Basic Navigation Course Offerings 2015

<https://www.mountaineers.org/about/branches-committees/seattle-branch/committees/seattle-navigation-committee/course-templates/basic-navigation-course/basic-navigation-course-seattle-2014> Fee.

Date & Day	Workshop	Date & Day	Fieldtrip
28 Jan, Wednesday	Program Center		
09 Feb, Monday	Program Center	14 Feb, Saturday	Heybrook Ridge
26 Feb, Thursday	Program Center	14 Mar, Saturday	Heybrook Ridge
05 Mar, Thursday	Program Center	15 Mar, Sunday	Heybrook Ridge
02 Apr, Thursday*	Program Center	11 Apr, Saturday*	Heybrook Ridge
29 Oct, Thursday	Program Center	07 Nov, Saturday	Heybrook Ridge

\*Registration preference to 2015 Alpine Scramble students

## Finding Navigation Courses, Activities and Events

Navigation Committee instructors are experiencing growing pains with the new course management system. Here are some tips for instructors and students to find and enroll in Seattle navigation courses, clinics and events.

- **Basic Navigation Course, Introduction to Map & Compass, Smart Phone & Dedicated GPS Course** are best located by:
  - Clicking the Learn tab on the Mountaineers home page.
  - Choose Select An Area...Navigation and click on Find Courses
  - Scroll down the Courses, Clinics and Seminars page to the Seattle course of your choice, for example Basic Navigation Course—Seattle
  - Course Activities will be listed so click on the date(s) wished
  - Click on the Registration Call Out for either Student or Instructor
- **Navigation Committee Meetings and other Events**
  - These are events so start with About on the home page
  - Click on Branches & Committees, then select Seattle Branch
  - Click on upcoming EVENTS to display a monthly calendar grid where you find activities and events in the Program Center and elsewhere
- **Need More Help?**
  - Committee Chair Peter Hendrickson responds to emails most days: [p.hendrickson43@gmail.com](mailto:p.hendrickson43@gmail.com)
  - Activity leaders listed with the activity description also respond.
  - Program Center staff are deeply knowledgeable at Home Page: About tab, Contact Us, QUICK HELP: [info@mountaineers.org](mailto:info@mountaineers.org) or TEL 206.521.6001 Member Services

## Introduction to Map & Compass—Getting Started

The Seattle Navigation Committee has scheduled six 2015 Introduction to Map and Compass dates at the Sandpoint Way Program Center from 6:30 to 8:30 p.m. Instructors are drawn from the pool of Basic Navigation Course teachers. You can

enroll at: <https://www.mountaineers.org/about/branches-committees/seattle-branch/committees/seattle-navigation-committee/course-templates/introduction-to-map-compass/introduction-to-map-compass-seattle-2014-1>. Primary Leader is Greg Testa ([gtesta48@hotmail.com](mailto:gtesta48@hotmail.com)). This Getting Started introductory class does not satisfy the navigation requirement for Alpine Scramble, Basic Climbing, Snowshoe or Backcountry Ski. Fee.

<b>Introduction to Map &amp; Compass 2015</b>	<b>Location</b>
Tuesday, January 13	Seattle Program Center
Thursday, April 16	Seattle Program Center
Tuesday, May 12	Seattle Program Center
Thursday, June 18	Seattle Program Center
Monday, August 17	Seattle Program Center
Thursday, September 17	Seattle Program Center

### **Navigation Projects**

Our Seattle Volunteer Park effort to create a navigation map and compass practice course remains "under construction." Efforts to engage high school students in the planning and execution have not panned out to date. Drop me a line if you'd like help in this project.

--Editor

### **Links, Apps of Interest**

Our often-consulted Seattle Navigation website has lived "outside" the official The Mountaineers website for many years. Sub-Committee Chair Wes Rogers is working with staff and other committees to see how we might bring our pages into the fold. Your comments and suggestions are ever welcome.

### **Navigation Gear-Romers**

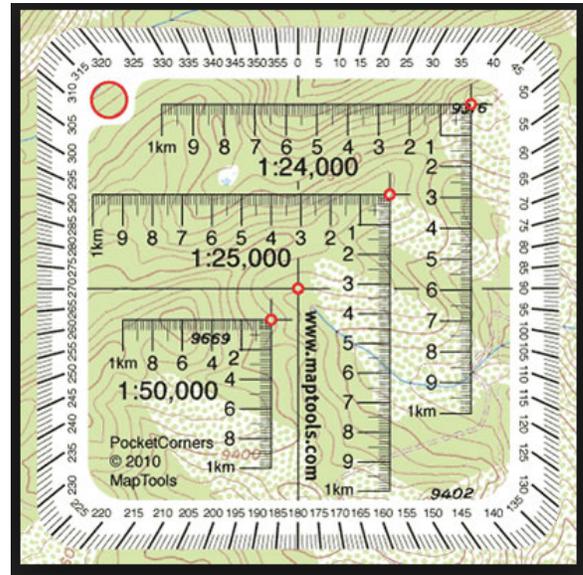
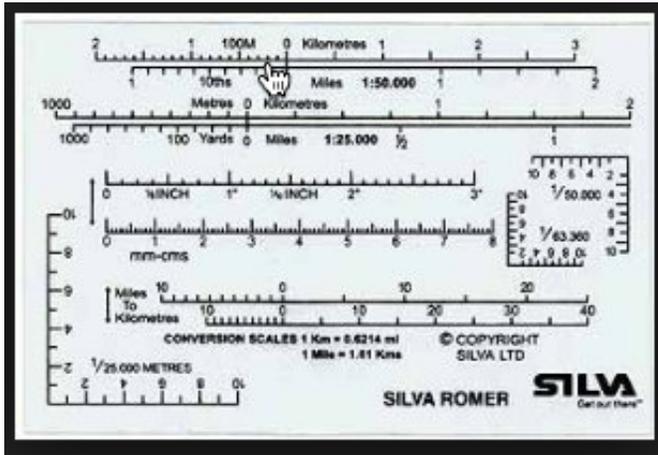
#### **"Roming" Your Map**

By Brian Carpenter

A useful tool for fine-tuning map coordinates, the Romer is a thin piece of clear plastic on which are printed a variety of measuring tools. Some Romers are specific to UTM systems; others offer several different scales. There is even a Romer that is specifically tuned to work with GreenTrails maps. Romers can be square, rectangular or shaped like small rulers. Why "Romer?" British inventor, First Lt. (British Royal Engineers) Carrol Romer (1883-1951), invented the grid reference cards for use in Northern France battlefields during the First World War.

Using a Romer is simple. You place the Romer on top of your map in the vicinity of the point for which you wish to determine coordinates. The Romer allows you to use the rather coarse scales on the map edges as a starting point and fine-tune

the coordinates with greater accuracy. Imagine a single UTM grid square on the map; the Romer acts as a micro-level measuring tool for this small area. Below are two examples of Romers.



A grid Romer (above right) will have a square grid that overlays your map and covers the easting and northing distance between one set of round numbers. The grid overlay allows the user to see the map and fine-tune the UTM coordinates more easily than simply eyeballing it.

A slot Romer (above left) can increase your accuracy to within 10 meters in a 1-kilometer square grid section. Instead of a grid it contains measuring scales for the easting and northing coordinates in an "L" format. The mid-point of the L, the zero mark for each scale, is placed on the point you wish to locate. One then reads the easting and northing scales between the zero point and the closest grid boundaries, adding these numbers to the macro-scale grid numbers.

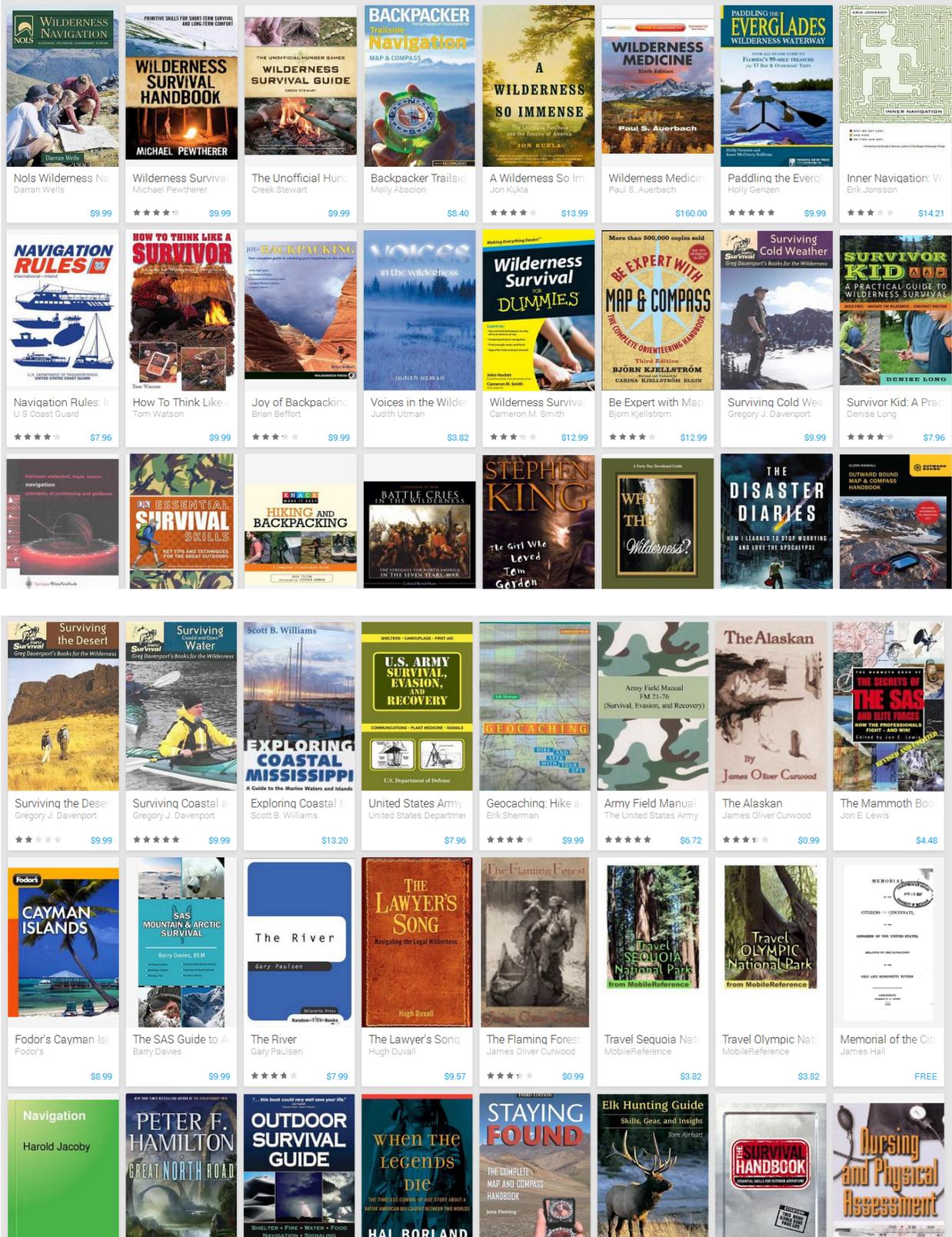
If you want to measure minutes and seconds of latitude and longitude, there is a Romer shaped like a ruler with scales for measuring down to the minute and single second. There is also a ruler-shaped Romer for estimating slope angles on contour maps. The ruler contains a graduated series of contours from low to high angles and matching your map contours with the closest ones on the ruler gives you a slope angle within 2 degrees.

Some compasses include a Romer scale as part of the baseplate markings, although they are usually cramped for size and a separate tool may be easier to use and read. Below is detail from a Silva compass with Romers at three different scales tucked near the magnifying lens.



Finding a Romer to buy will involve some navigation work of its own, most likely involving the Internet. Try orienteering or forestry supply outfits. REI does not have any in its online catalog. Brooks Range Mountaineering ([www.brooksrange.com](http://www.brooksrange.com)) offers several "all-in-one" Romer tools. MapTools ([www.maptools.com](http://www.maptools.com)), based in California, offers the widest variety of Romers in all shapes, sizes and scales, including the nifty slope angle Romer.

*--Brian Carpenter is a Seattle Navigation Committee member and a regular Introduction to Map & Compass and Basic Navigation Course instructor. A legal assistant, he is seeking Wilderness First Responder certification.*



And here it is, a Google search on navigation book titles.

## Navigation Gear--Compasses

### Required Features of a Compass for Seattle Basic Navigation Course

Seattle Mountaineers—Revised October 2014

1. **Adjustable declination:** A moveable orienting arrow, which provides a built-in declination adjustment. If there is one feature that simplifies map and compass work, this is it. Compasses with adjustable declination can often be identified by the presence of an adjustment screw, usually brass or copper-colored, and a small key attached to the lanyard.
  - All students **MUST** have a compass with adjustable declination. The presence of a declination scale does not guarantee that it can be adjusted. We also recommend not having the ‘tool-less’ declination feature (we have no experience with newest models).
  - If you already have a compass without adjustable declination, you may not use it in this course. Experience indicates that such compasses detract from the learning experience.
2. A **transparent rectangular base plate** with a direction of travel arrow or a sighting mirror.
  - Transparency allows map features to be seen underneath the compass.
  - A rectangular shape provides straight edges and square angles to plot and triangulate on the map.
3. A **bezel** (the rotating housing) marked clockwise from 0 to 360 degrees in increments of two degrees or less. In general, bezels should be large to allow use while wearing gloves - the larger size also improves accuracy.
4. **Meridian lines:** Parallel 'meridian lines' on the bottom of the interior of the circular compass housing rotate with the bezel when it is turned. The meridian lines run parallel to the north-south axis of the bezel, however turned, for plotting and triangulating on the map.
5. A **ruler and/or gradient scale** engraved on one of the straight edges, used for measuring distances. Compasses with other additional scales facilitate advanced navigation.
6. A **3 to 4-inch base plate**. A longer straight edge makes map work easier.

#### Additional recommendations

- A sighting mirror in the cover: This reduces errors introduced when moving the compass from eye-level after sighting to waist-level for reading the dial.
- A liquid-filled housing: Reduces erratic needle movement (only needed on some compasses). In some cases, steadying the compass needle can be difficult
- An inclinometer: a gravity driven arrow that allows you to measure slope angle.

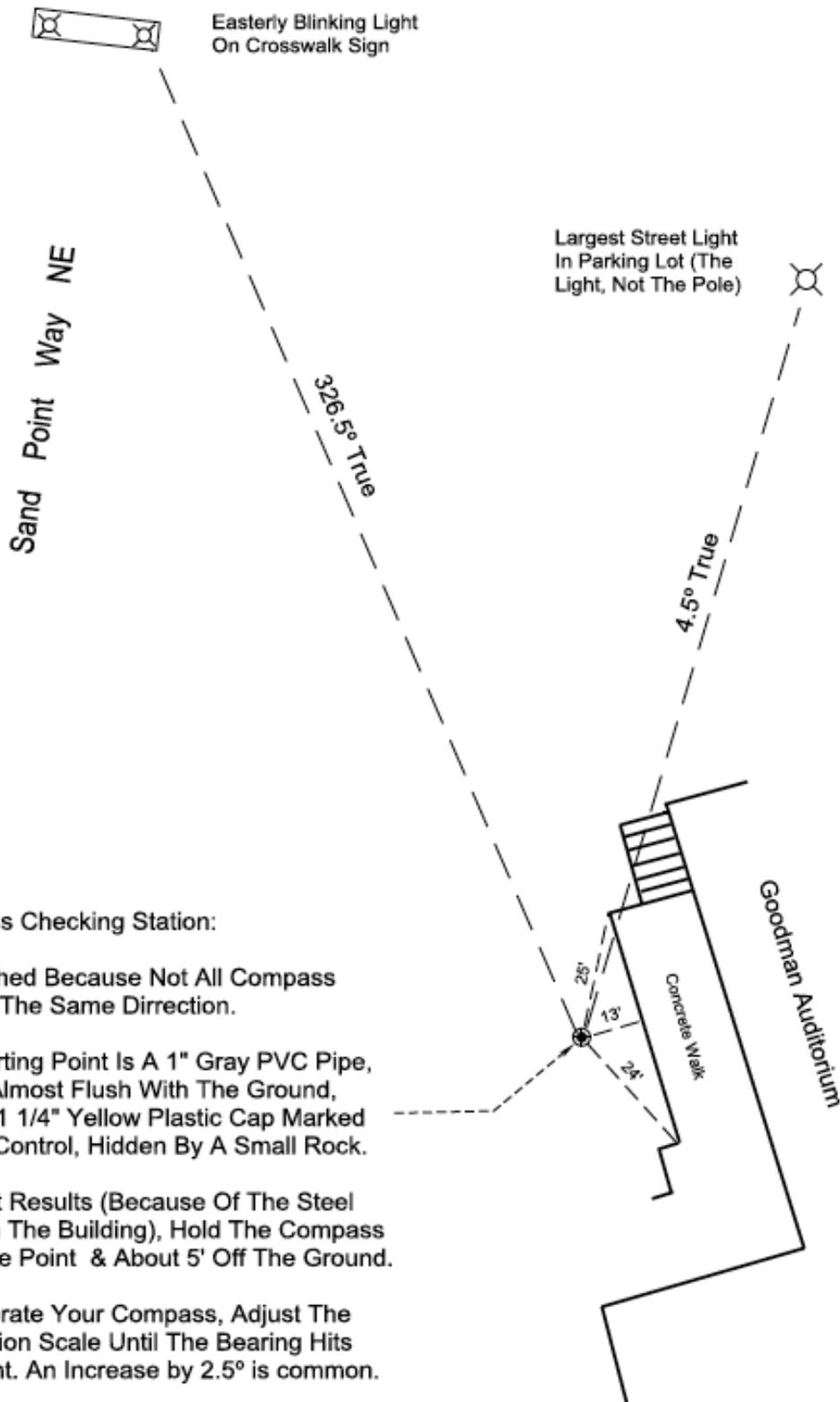
**Current favorites** with a sighting mirror include the Silva's Ranger CL and Ranger 75.

Recommended compasses without a mirror include the Suunto M-3 IN and the Silva Explorer Pro.

Please note that not all of these recommended compasses are available at REI. Silva can be purchased online at Campsaver.com and at Cabela's. Suunto is currently available at REI and online. Keep any receipt! We have unfortunately had many defective compasses in the past.

Brunton compasses have also been recommended. However, current offerings all now include ‘tool-less declination’ which requires pressing down on the bezel to set the declination. We have found this to be difficult and may not provide the best accuracy. While Brunton compasses meet all our specifications, tool-less declination makes them problematic and we do not recommend using this brand for the class.

We also recommended the Suunto MC-2 last year but experienced issues with warped mirrors as well as incorrect declination settings. The manufacturer has corrected the mirror, but a local SAR has reported that most compasses still exhibit the declination problem. Most can be corrected with an additional 2 degrees East adjustment (e.g., 16 degrees East would need to be 18 degrees east). If you are comfortable with declination settings and taking accurate bearings with this issue in mind, the MC-2 is OK. However, we would not recommend using it for the Basic Wilderness Navigation course.



**Compass Checking Station:**

Established Because Not All Compass Point In The Same Dirrection.

The Starting Point Is A 1" Gray PVC Pipe, Driven Almost Flush With The Ground, With A 1 1/4" Yellow Plastic Cap Marked Survey Control, Hidden By A Small Rock.

For Best Results (Because Of The Steel Roof On The Building), Hold The Compass Over The Point & About 5' Off The Ground.

To Calibrate Your Compass, Adjust The Declination Scale Until The Bearing Hits The Light. An Increase by 2.5° is common.

Please Hide With Rock When Finished.

## **Navigating Northwest (and east) Brooklyn**

By Peter Hendrickson

Navigating big city streets brings delights and (sometimes) dangers, much like wilderness treks. Somehow I've become a borough bagger, determined to walk the boundaries of the five New York City boroughs, each of them a large city with distinct topographies, cultures and wondrous places. Manhattan was first, around 50 miles with side trips. If you're lucky enough to walk north along the Hudson River on a cold, wet winter day, you can go for two hours without seeing another soul.

Planning calls for blog searches, TV and newspaper pieces aimed at natives, Google street maps, repeated weather checks, alerts to neighborhood events or threats, and conversations with family and friends who have favorite places. Most hotels also have excellent city maps including subway lines. The 10 essentials fit in a REI Flash 22 daypack. Always wool or synthetics, never cotton.

1. Navigation (maps: hotel, Google, AAA, Smart Phone & wrist ABC compass)
2. Sun protection (sunglasses and sunscreen)
3. Insulation (sometimes fleece scarf, thin wind-blocker gloves, dry socks, fleece hat & Nano Puff jacket all in thin, 20L dry bag)
4. Illumination (headlamp always)
5. First-aid supplies (emphasis moleskin, band aids & ibuprofen)
6. Fire (matches in a baggie as airlines discourage carry-on lighters)
7. Repair kit and tools (credit card size SwissCard tool)
8. Nutrition (nuts, raisins & bars as fruit cravings lead me to Mom/Pop markets)
9. Hydration (two half liters in pack mesh pockets)
10. Emergency shelter (tiny Mylar wrap as given to marathon finishers)

Day two in Brooklyn on a chilly November day started in Jersey City with a PATH train to Manhattan, a brisk walk over the Brooklyn Bridge and mild disappointment that the Brooklyn Navy Yard had restricted access. An old newspaper friend joined me as far as Carmine's Pizzeria as the ethnic neighborhoods rolled by. We considered scoring a snack outside the set of "Blue Bloods" but the many suits discouraged sidewalk browsing. I wrapped up just east of Highland Park for a train back to Manhattan at dusk and a great Indian meal not far from REI. Just shy of 20 miles.

One of the keys to big city treks is to start at daybreak, light enough to navigate and generally safer than nightfall. Another is to visualize the route by plotting and studying a possible route in the days before the trek. Check the local newspaper the day before for trouble spots or grand events along your route. Take on enough fuel en route to the start point to perform for a couple of hours in case restaurants are not open.

Ask directions frequently, even if the route is clear. Most folks are pleased you're interested in their city beyond the big museum, the tallest building and the killer river front view. And they'll tell you about neighborhood features, events, history... no map or guidebook would reveal. Chat with cops, security guards, dog walkers, letter carriers, parking lot attendants, job site workers...they know the territory. Don't count on local folks to be able to read your map so keep a significant intermediate destination in mind--think big cross streets or subway stations, for short-term directions. Your planning should include possible public transit stops and stations for the return or in the event you need to cut short the walk.

If you're traveling in an ethnic neighborhood, learn "excuse me", "please", "left, right", and "thank you" in the local language. Well, at least "thank you." And you may need to decide what level of modesty fits the local ambience when it comes to long stretches between public toilets. Think hard about when you'll pull out your phone or camera to take a photo—snatch and grab are alive and well. Conceal your cash and use small notes to pay for this and that.

**Traveler Note:** Contact Peter at [p.hendrickson43@gmail.com](mailto:p.hendrickson43@gmail.com) for city walk hints in NYC, D.C., Boston, Chicago, New Orleans, San Francisco, Denver, Vancouver, London, Brussels, Zurich, Paris, Basel, Bogota, Quito, Cuzco, Buenos Aires, Mendoza, Punta Arenas, La Paz, Seattle...

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<p><b>Inquiries, Contributions, Letters to the Editor to Seattle Branch Navigation Chair Peter Hendrickson</b> <a href="mailto:p.hendrickson43@gmail.com">p.hendrickson43@gmail.com</a></p>
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**Guidelines for contributors: Under Development**

**"Do not go where the path may lead, go instead where there is no path and leave a trail." --Ralph Waldo Emerson, American writer, 1803-1882**

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